

signal leads connected on said substrate and said chip to said means for capacitively signalling.

28. (Amended) An electronic system comprising:

a semiconductor chip;

a substrate;

a plurality of electronic devices implemented on said chip, a signal lead of at least one of said plurality of electronic devices coupled to a first half-capacitor attached to said chip; and,

a second half-capacitor attached to said substrate and capacitively coupling a signal to said first half-capacitor.

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37. A modular electronic system as defined in claim 1 wherein said means for capacitively signalling comprises first and second coupled half-capacitors, said first half-capacitor being associated with said chip and said second half-capacitor being associated with said substrate, said first and second coupled half-capacitors comprising effectively overlapping conductive regions separated by a gap.

38. A modular electronic system as defined in claim 37 wherein at least one of said conductive regions comprises a plate.

39. A modular electronic system as defined in claim 37 wherein the capacitance of said means for capacitively signaling can be varied by changing the effective area of overlap between said conductive regions.

40. A modular electronic system as defined in claim 37 wherein portions of said chip are passivated, but not said first half-capacitor.

41. A modular electronic system as defined in claim 37 wherein said gap is at least partially filled with a dielectric.

42. A modular electronic system as defined in claim 41 wherein said dielectric comprises a uniform material.

43. A modular electronic system as defined in claim 41 wherein said dielectric accommodates mechanical guides.

44. (Amended) A modular electronic system comprising:
a substrate;
a chip;
means for powering said chip;
means for capacitively signaling between said chip and said substrate
comprising first and second coupled half-capacitors, said first half-capacitor being associated with said chip and said second half-capacitor being associated with said substrate, said first and second coupled half-capacitors comprising effectively overlapping conductive regions separated by a gap that is at least partially filled with a dielectric; and
a power connector extending through said dielectric.

45. A modular electronic system as defined in claim 41 further including passivation distinct from said dielectric.

46. (Amended) A modular electronic system as defined in claim 45 wherein said dielectric has a substantially greater dielectric constant than does said passivation.

47. A modular electronic system as defined in claim 41 wherein said dielectric is bonded to said substrate.

48. A modular electronic system as defined in claim 41 wherein said dielectric provides a means for affixing said chip to said substrate.

52. A modular electronic system as defined in claim 1 wherein said means for capacitively signaling operates despite a substantial misalignment between said substrate and said chip.

53. (Amended) A modular electronic system as defined in claim 39 further comprising a plurality of coupled half-capacitors, a substantial area of said chip and a substantial portion of the area of said substrate overlapping said chip being covered with substantially overlapping half-capacitors.

54. A modular electronic system as defined in claim 53 wherein at least one half-capacitor on said chip is connected to a chip ground, power, or other common reference signal.

55. A modular electronic system as defined in claim 53 wherein at least one half-capacitor on said substrate is connected to a substrate ground, power, or other common reference signal.

56. A modular electronic system as defined in claim 39 wherein the area of one of said conductive regions is greater than the area of the other of said conductive regions.

57. A modular electronic system as defined in claim 39 wherein the shape of one of said conductive regions differs from the shape of the other of said conductive regions.

58. A modular electronic system as defined in claim 39 wherein said first half-capacitor overlays circuitry.

59. (Amended) A modular electronic system comprising:
a substrate;
a chip;
means for powering said chip;

means for capacitively signaling between said chip and said substrate comprising first and second coupled half-capacitors, said first half-capacitor being associated with said chip and said second half-capacitor being associated with said substrate, said first and second coupled half-capacitors comprising effectively overlapping conductive regions separated by a gap; and

an additional half-capacitor associated with one of said chip and said substrate.

102. (Amended) A modular electronic system comprising:

a first module having a plurality of semiconductor electronic devices, a first half-capacitor and at least one signal lead connecting said electronic devices to said first half-capacitor;

a second module having a second half-capacitor, said modules being positioned such that said first and second half-capacitors provide a capacitive signal path between said first and second modules; and

contacts for supplying DC power to said first module from a source outside said first module.

143. A modular electronic system as defined in claim 102 wherein said first and second half-capacitors are shaped such that the admittance of said capacitive signal path is substantially unaffected by a small misalignment between said first and second modules.

144. A modular electronic system as defined in claim 102 wherein the area of one of said half-capacitors is greater than the area of the other of said half-capacitors.

146. A modular electronic system as defined in claim 102 wherein the shape of one of said half-capacitors differs from the shape of the other half-capacitor.

147. A modular electronic system as defined in claim 146 wherein said shape of said one of said half-capacitors is designed to accommodate anticipated misalignment.

210. A modular electronic system as defined in claim 1 further comprising a transmission line coupled to a first means for capacitively signalling.

211. A modular electronic system as defined in claim 210 wherein said transmission line is further coupled to a second means for capacitively signalling.

212. A modular electronic system as defined in claim 210 wherein said transmission line is further coupled to a conductive junction.

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213. A modular electronic system as defined in claim 210 wherein
a first multiplicity of said means for capacitively signaling between said chip
and said substrate occupies a first area at a first pitch,
a second multiplicity of means for conductively signaling occupies a second
area of said substrate at a second pitch,
a multiplicity of said transmission lines connects said first and second areas,
and
said second area is larger than said first area.

214. A modular electronic system as defined in claim 210 wherein
a first multiplicity of said means for capacitively signaling between said chip
and said substrate occupies a first area at a first pitch,
a second multiplicity of means for conductively signaling occupies a second
area of said substrate at a second pitch,
a multiplicity of said transmission lines connects said first and second areas,
and
said second pitch is larger than said first pitch.

215. A modular electronic system as defined in claim 210 wherein
a first multiplicity of said means for capacitively signaling between said chip
and said substrate occupies a first area at a first pitch,

a second multiplicity of means for capacitively signaling occupies a second area of said substrate at a second pitch,
a multiplicity of said transmission lines connects said first and second areas,
and
said second area is larger than said first area.

216. A modular electronic system as defined in claim 210 wherein
a first multiplicity of said means for capacitively signaling between said chip and said substrate occupies a first area at a first pitch,
a second multiplicity of means for capacitively signaling occupies a second area of said substrate at a second pitch,
a multiplicity of said transmission lines connects said first and second areas,
and
said second pitch is larger than said first pitch.

217. A modular electronic system as defined in claim 102 including further paired half-capacitors such that said capacitive signal path is distributed among multiple capacitors.

218. (Amended) A modular electronic system as defined in claim 102 wherein said first module is positioned relative to said second module by motion transverse to said capacitive signal path.

219. A modular electronic system as defined in claim 102 wherein said second module is a cable, said cable including at least one non-coaxial wire.

220. (Amended) A modular electronic system as defined in claim 102 wherein said first module further includes a transmission line that is connected to a plurality of transmission lines.

221. A modular electronic system as defined in claim 102 further comprising means for varying the admittance of said capacitive signal path by changing the effective area of overlap between said half-capacitors.

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\$1 222. A modular electronic system as defined in claim 221 wherein said means for varying the admittance includes mechanical devices.

F2 223. (New) A modular electronic system comprising:
a substrate;
a semiconductor chip;
a first half-capacitor attached to said semiconductor chip;
a plurality of electronic devices implemented on said chip, a signal lead of at least one of said plurality of electronic devices coupled to said first half-capacitor; and
a second half-capacitor attached to said substrate and capacitively coupling a signal to said first half-capacitor.

224. (New) The modular electronic system of claim 223 further comprising contacts for supplying DC power to said semiconductor chip from a source outside said chip.
